

## Ioannis Panageas

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CONTACT INFORMATION	51 Changi South Ave 1 Singapore, 485995 Singapore	<i>Voice:</i> (+65)94553803 <i>E-mail:</i> ioannis@sutd.edu.sg <i>Webpage:</i> <a href="https://sites.google.com/site/panageasj/">https://sites.google.com/site/panageasj/</a>
CITIZENSHIP	Greek	
POSITIONS	<b>Singapore University of Technology and Design</b> , Singapore Fall 2018 - Present  Assistant Professor, Information Systems  <b>Massachusetts Institute of Technology</b> , Cambridge, MA, USA Fall 2017 - Fall 2018  Postdoctoral researcher Mentor: Constantinos Daskalakis  <b>Singapore University of Technology and Design</b> , Singapore Fall 2016 - Summer 2017  Postdoctoral researcher	
EDUCATION	<b>Georgia Institute of Technology</b> , Atlanta, GA, USA Fall 2011 - Summer 2016  PhD in Algorithms Combinatorics and Optimization (ACO) Dissertation Title: Evolutionary Markov Chains, Potential Games and Optimization Under the Lens of Dynamical Systems. Advisor: Prasad Tetali  Master of Sciences in Mathematics  <b>University of Athens</b> , Athens, Greece Fall 2010 - Fall 2011  Master of Sciences in Logic, Algorithms & Computation  <b>National Technical University of Athens</b> , Athens, Greece October 2005 - November 2010  Diploma, Electrical and Computer Engineering GPA: 9.54/10 (Top 1%) ( <i>with highest honors</i> ) <ul style="list-style-type: none"><li>• Major: Computer Science, Minor: Mathematics, Networks</li></ul>	
RESEARCH INTERESTS	Theory of computation and its interface with optimization, dynamical systems, probability and statistics, machine learning and their applications to game theory, evolution and dynamics on networks.	
CONFERENCE PUBLICATIONS	<ol style="list-style-type: none"><li>1. <i>Last-Iterate Convergence: Zero-Sum Games &amp; Constrained Min-Max Optimization.</i> with Constantinos Daskalakis. In the 10th Innovations in Theoretical Computer Science (<b>ITCS</b>) 2019.</li></ol>	

2. *The Limit Points of (Optimistic) Gradient Descent in Min-Max Optimization.*  
with Constantinos Daskalakis.  
Conference on Neural Information Processing Systems (**NIPS**) 2018.
3. *Rock-Paper-Scissors, Differential Games and Biological Diversity.*  
with Tung Mai, Will Ratcliff, Vijay V. Vazirani and Peter Yunker.  
In Conference on Economics and Computation (**EC**) 2018.
4. *Multiplicative Weights Update with Constant Step-Size in Congestion Games: Convergence, Limit Cycles and Chaos.*  
with Gerasimos Palaiopanos and Georgios Piliouras.  
Conference on Neural Information Processing Systems (**NIPS**) 2017, **spotlight**.
5. *Opinion Dynamics in Networks: Convergence, Stability and Lack of Explosion.*  
with Tung Mai and Vijay V. Vazirani.  
In International Colloquium on Automata, Languages and Programming (**ICALP**) 2017.
6. *Gradient Descent Converges to Minimizers: Non-Isolated Critical Points and Invariant Regions.*  
with Georgios Piliouras.  
In Innovations in Theoretical Computer Science (**ITCS**) 2017.
7. *Mutation, Sexual Reproduction and Survival in Dynamic Environments.*  
with Ruta Mehta, Georgios Piliouras, Prasad Tetali and Vijay Vazirani.  
In Innovations in Theoretical Computer Science (**ITCS**) 2017.
8. *The Computational Complexity of Genetic Diversity.*  
with Ruta Mehta, Georgios Piliouras and Sadra Yazdanbod.  
In European Symposia on Algorithms (**ESA**) 2016.
9. *Average Case Performance of Replicator Dynamics in Potential Games via Computing Regions of Attraction.*  
with Georgios Piliouras.  
In Conference on Economics and Computation (**EC**) 2016.
10. *Mixing time of markov chains, dynamical systems and evolution.*  
with Nisheeth K. Vishnoi.  
In International Colloquium on Automata, Languages and Programming (**ICALP**) 2016.
11. *Evolutionary Dynamics in finite populations mix rapidly.*  
with Piyush Srivastava and Nisheeth K. Vishnoi.  
In Symposium on Discrete Algorithms (**SODA**) 2016.
12. *Natural Selection as an Inhibitor of Genetic Diversity: Multiplicative Weights Updates Algorithm and a Conjecture of Haploid Genetics.*  
with Ruta Mehta and Georgios Piliouras.  
In Innovations in Theoretical Computer Science (**ITCS**) 2015.

13. *Support-theoretic subgraph preconditioners for large-scale SLAM.*  
with Yong-Dian Jian, Doru Balcan, Prasad Tetali and Frank Dalleart.  
In International Conference on Intelligent Robots and Systems (**IROS**) 2013.

#### MANUSCRIPTS

- Regression from Dependent Observations  
with Constantinos Daskalakis and Nishanth Dikkala.  
Submitted to **STOC** 2019.

#### JOURNAL PUBLICATIONS

- *Multiplicative Weights Update with Constant Step-Size in Congestion Games: Convergence, Limit Cycles and Chaos.*  
with Gerasimos Palaiopoulos and Georgios Piliouras.  
To be Submitted to **Games and Economic Behavior**.
- *First-order Methods Almost Surely Avoid Saddle-points.*  
with Jason D. Lee, Georgios Piliouras, Max Simchowitz, Michael I. Jordan and Benjamin Recht.  
Submitted to **Math. Programming, Special Issue**.
- *Dynamical systems and Mixing time of Evolutionary Markov chains.*  
with Piyush Srivastava and Nisheeth K. Vishnoi.  
To be submitted to **Annals of Applied Probability**.
- *Average Case Performance of Replicator Dynamics in Potential Games via Computing Regions of Attraction.*  
with Georgios Piliouras.  
To be submitted to **Games and Economic Behavior**.

#### TALKS AND PRESENTATIONS

- EC, Cornell, Ithaca, June 2018
- Northwestern Program on Econometrics, Evanston, April-June 2018
- CS theory seminar, UC Irvine, California, April 2018
- NIPS, Long Beach, California, December 2017
- Seminar on Stochastic Processes, UVA, Virginia, March 2017
- ITCS, Simons Institute, Berkeley, January 2017
- SUTD Brainlab, Singapore, November 2016
- SODA in Arlington USA, January 2016
- ITCS, Weizmann Institute of Science, Israel, January 2015
- ACO seminar, Georgia Institute of Technology, September 2014
- ACO seminar, Georgia Institute of Technology, March 2014

#### ACADEMIC SERVICE

(Sub)reviewer for  
Conferences: AAAI, IJCAI, FSTTCS, ISIT, WINE, ICALP, SODA, FOCS, STOC.  
Journals: Games and Economic Behavior, IEEE Transactions on Information Theory.

TEACHING  
EXPERIENCE

Singapore University of Technology and Design

- Instructor for the undergrad course *Introduction to Algorithms* Fall 2018.
- Instructor for the undergrad course *Advanced Math I* Summer 2017.
- Instructor for the grad course *Randomized Algorithms* Spring 2017.

HONORS AND  
AWARDS

**MIT-SUTD**

- Selected to participate at GYSS 2017
- Postdoc Fellow

**Georgia Institute of Technology**

- ARC fellowship Fall 2014
- ARC fellowship Spring 2013
- Onassis fellowship Fall 2011

**National Technical University of Athens**

- My team (3 members) ranked 18<sup>th</sup>, 17<sup>th</sup> (top 25) in IEEE xtreme programming contest among 1000/700 teams, 2009/2010
- Ranked 2<sup>nd</sup> at NTUA's Mathematics Contest, 2008 and Third Prize in IMC, 2008
- Silver Medal in SEEMOUS (Math Contest for university students), 2007
- Papakyriakopoulos Award for excellence in Mathematics (GPA 10/10) in the School of Electrical and Computer Engineering, 2005-07

**High School Mathematical Contests**

- Participation in 46<sup>th</sup> International Mathematical Olympiad (IMO) 2005
- Participation in 22<sup>nd</sup> Balkan Mathematical Olympiad (BMO) 2005
- Silver Medal, Honourable Mention at 7<sup>th</sup>, 8<sup>th</sup> Mediterranean Mathematical Olympiad (MMO), 2004, 2005
- 1 Gold Medal, 4 Silver Medals, 3 Bronze Medal at Greek National Mathematical Olympiads awarded by the Hellenic Mathematical Society, 2001-2005
- Member of the National Mathematical Team, 2001, 2004, 2005
- 1 Gold Medal, 1 Silver Medal, 1 Bronze Medal at National Olympiad in Probability, 2005, 2003, 2004

**High School contests in Informatics**

- Participation in 17<sup>th</sup>, 18<sup>th</sup> International Olympiad in Informatics (IOI) in 2004, 2005
- Bronze Medal in Balkan Olympiad in Informatics (BOI) in 2005
- Participation in Balkan Olympiad in Informatics (BOI) in 2004, 2005
- Member of the National Team in Informatics, 2004, 2005

LANGUAGES

**Greek:** native speaker, **English:** fluently, **French:** advanced